



UNITED STATES PATENT AND TRADEMARK OFFICE

UNITED STATES DEPARTMENT OF COMMERCE
United States Patent and Trademark Office
Address: COMMISSIONER FOR PATENTS
P.O. Box 1450
Alexandria, Virginia 22313-1450
www.uspto.gov

APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
09/990,867	11/16/2001	Werner Hartmeier	OBJ-2852	2173
7590	06/28/2004		EXAMINER YAM, STEPHEN K	
Stephan E. Bondura Dority & Manning, Attorneys at Law, P.A. P.O. Box 1449 Greenville, SC 29602			ART UNIT	PAPER NUMBER
			2878	

DATE MAILED: 06/28/2004

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary

Application No.

09/990,867

Applicant(s)

HARTMEIER ET AL.

Examiner

Stephen Yam

Art Unit

2878

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --
Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☐ Responsive to communication(s) filed on ____.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 32-64 is/are pending in the application.
- 4a) Of the above claim(s) ____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) ____ is/are allowed.
- 6) ☒ Claim(s) 32-64 is/are rejected.
- 7) ☐ Claim(s) ____ is/are objected to.
- 8) ☐ Claim(s) ____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☒ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on ____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☒ All b) ☐ Some * c) ☐ None of:
1. ☒ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. ____.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
- * See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- 1) ☒ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☒ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)
Paper No(s)/Mail Date 0803.
- 4) ☐ Interview Summary (PTO-413)
Paper No(s)/Mail Date. ____.
- 5) ☐ Notice of Informal Patent Application (PTO-152)
- 6) ☐ Other: ____.

DETAILED ACTION

Specification

1. The title of the invention is not descriptive. A new title is required that is clearly indicative of the invention to which the claims are directed.

Claim Objections

Claim 63 is objected to, as the claim is dependent upon itself.

Claim Rejections - 35 USC § 102

2. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

3. Claims 32, 33, 35, 43, 44, 51, 53, 55, and 62 are rejected under 35 U.S.C. 102(b) as being anticipated by Scheinhütte US Patent No. 4,953,265.

Regarding Claim 32, Scheinhütte teaches (see Fig. 1 and 2) a method for determining points of disturbance in a fibrous planar structure produced within a textile machine (see Col. 1, lines 7-9), the method comprising of the steps of moving (see Col. 3, lines 1-14) the planar structure relative to a plurality of photodiodes (18) (see Fig. 3 and 4 and Col. 3, lines 50-62) arranged in a line carried within a measuring device, measuring optically the brightness of reflected light from the planar structure using the photodiodes (see Fig. 2 and Col. 3, lines 50-

Art Unit: 2878

52), detecting (see Col. 4, lines 7-11) areas of the planar structure having brightness values above a pre-determined threshold brightness value, measuring (see Col. 4, lines 24-31) the extent of surface size of the areas having the brightness values above the pre-determined threshold brightness value, and classifying (see Col. 4, lines 28-31) the areas having the brightness values above the pre-determined threshold brightness value as points of disturbance in the planar structure based on the extent of surface size of the areas of such brightness values.

Regarding Claim 33, Scheinhütte teaches the textile machine producing the planar structure as a card having a doffer (See Col. 3, lines 1-11).

Regarding Claim 35, Scheinhütte teaches the method in Claim 33, according to the appropriate paragraph above. Scheinhütte also teaches a small surface size of the area of the planar structure having the brightness value above the pre-determined threshold brightness value classified as a point of disturbance and large surface sizes as permissible brightness fluctuation within the planar structure (see Col. 4, lines 28-31).

Regarding Claim 43, Scheinhütte teaches signals from the photodiodes representing brightness values are individually examined against the threshold brightness value (see Col. 3, line 67 to Col. 4, line 11).

Regarding Claim 44, Scheinhütte teaches the length of an area of the planar structure having a brightness value above the threshold brightness value determined by the speed of the doffer (see Col. 5, lines 5-14) and the time period during which the photodiodes signal exceeds the brightness value (see Col. 4, lines 24-31).

Regarding Claim 51, Scheinhütte teaches the area of the planar structure being measured for brightness illuminated from one side (see Fig. 2).

Art Unit: 2878

Regarding Claim 53, Scheinhütte teaches (see Fig. 3 and 4) the measuring device carrying a plurality of measuring heads (18) with each measuring head carrying a plurality of photodiodes (17) which the measuring heads control (see Col. 3, lines 60-66 and Col. 4, lines 53-58).

Regarding Claim 55, Scheinhütte teaches (see Fig. 1-4) a device for determining points of disturbance in a fibrous planar structure produced within a textile machine, said device comprising a plurality of measuring heads (18) carried within said textile machine, said measuring heads positioned to collect information about said fibrous planar structure as said planar structure moves past said measuring heads within said textile machine (see Col. 3, lines 1-14 and 50-62), and a plurality of photodiodes arranged in a line perpendicular to the machine direction of said textile machine and carried within each of said measuring heads (see Fig. 2-4 and Col. 3, lines 3, lines 50-66), said photodiodes measuring optically a brightness of reflected light from said planar structure and communicating with said measuring head within which said photodiodes are carried (see Col. 4, lines 39-49), and a central processor ("integrated circuit"- see Col. 4, lines 32-38) connected to each of said measuring heads through data lines ("connections"- see Col. 4, lines 34-36), said central processor working in conjunction with said plurality of measuring heads containing said plurality of photodiodes to detect (see Col. 4, lines 7-11) areas of the planar structure having brightness values above a pre-determined threshold brightness value, measure (see Col. 4, lines 24-31) the extent of surface size of said areas and classify (see Col. 4, lines 28-31) said areas as points of disturbance in the planar structure based on the extent of surface size of said areas.

Regarding Claim 62, Scheinhütte teaches said textile machine as a card (see Col. 3, lines 1-3) having a doffer (4) (see Col. 3, lines 7-11) for removing said planar structure from a tambour (3) of said card.

Claim Rejections - 35 USC § 103

4. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

5. Claims 34 and 45-48 are rejected under 35 U.S.C. 103(a) as being unpatentable over Scheinhütte in view of Chu et al. US Patent No. 6,088,094.

Regarding Claim 34, Scheinhütte teaches the method in Claim 33, according to the appropriate paragraph above. Scheinhütte also teaches the extent of surface size of the areas having the brightness above the pre-determined threshold brightness value determined by the duration of time the photodiodes detect the area of such brightness values (see Col. 4, lines 24-31). Scheinhütte does not teach the extent of surface size also determined by the number of responding photodiodes that detect the area of such brightness values. Chu et al. teach a similar method, wherein the extent of surface size of a disturbance is determined by the number of photodiodes crossing the threshold (see Col. 9, lines 56-67). It would have been obvious to one of ordinary skill in the art at the time the invention was made to use the number of responding photodiodes that detect the area of such brightness values to determine the extent of surface size of the areas, as taught by Chu et al., in the method of Scheinhütte, to provide further

Art Unit: 2878

determination and recognition of varying types of defects according to size, as taught by Chu et al. (see Col. 12, lines 43-58).

Regarding Claim 45, Scheinhütte teaches the method in Claim 44, according to the appropriate paragraph above. Scheinhütte does not teach the width of the area of the planar structure having a brightness value above the threshold brightness value determined by adding the width of adjacent photodiodes' coverage of the planar structure which detect areas having brightness values above the threshold brightness value at the same time. Chu et al. teach a similar method, wherein the width of the area of the planar structure crossing the threshold brightness value is determined by adding the width of adjacent photodiodes' coverage of the planar structure which detect areas having brightness values crossing the threshold brightness value at the same time (see Col. 9, line 63 to Col. 10, line 23 and Col. 12, lines 43-50).

Regarding Claims 46-48, Scheinhütte in view of Chu et al. teach the method in Claim 46, according to the appropriate paragraph above. Regarding Claim 47, Scheinhütte also teach the surface size of the area of the planar structure having a brightness value above the threshold brightness value that exceeds a predetermined surface size is not considered a point of disturbance (see Col. 4, lines 24-31), and that a typical area of the disturbance is approximately 0.5mm^2 . Scheinhütte does not teach the extent of the surface size of the area of the planar structure having a brightness value above the threshold brightness value calculated by multiplying the determined length and width of the area of the planar structure having a brightness value above the threshold brightness value, or the predetermined surface size as 4mm^2 . It is well known in the art to approximate the area of a generally-rectangular structure using the area of its rectangular dimensions, and to set a sufficiently-large threshold to detect all

Art Unit: 2878

objects of interest while filtering out all other false readings. It would have been obvious to one of ordinary skill in the art at the time the invention was made to calculate the extent of the surface size of the area of the planar structure having a brightness value above the threshold brightness value calculated by multiplying the determined length and width of the area of the planar structure having a brightness value above the threshold brightness value, and to set the predetermined surface size as 4mm^2 in the method of Scheinhütte in view of Chu et al., to provide detection of combined disturbances and accurate determination of surface sizes using a line sensor, and to detect all disturbances while sufficiently filtering out false readings.

6. Claims 36-42 are rejected under 35 U.S.C. 103(a) as being unpatentable over Scheinhütte in view of Nakagawa et al. US Patent No. 4,162,126.

Regarding Claims 36-40, Scheinhütte teaches the method in Claim 33, according to the appropriate paragraph above. Scheinhütte does not teach calculating an average brightness value for the planar structure, calculating the threshold brightness value by multiplying the average brightness value by a factor number, wherein the average brightness value is calculated by taking the average of measurements of all the photodiodes within the measuring device, wherein the measurements used for calculating the average brightness value are the overall voltages of the photodiodes signal, and wherein the average brightness value is calculated over a period of time corresponding to a predetermined distance the planar structure travels. Nakagawa et al. teach (see Fig. 3 and 12) a similar method, further comprising calculating (see Col. 5, lines 3-6) an average brightness value for a structure (13) (see Col. 3, lines 28-38), calculating the threshold brightness value by multiplying the average brightness value by a factor number (see Col. 5,

Art Unit: 2878

lines 6-10), wherein the average brightness value is calculated by taking the average of measurements of the photodiodes within the measuring device (see Col. 4, line 57 to Col. 5, line 10), and wherein the measurements used for calculating the average brightness value are the overall voltages of the photodiodes signal (see Col. 4, lines 57-62), and wherein the average brightness value is calculated over a period of time corresponding to a predetermined distance (due to constant rotational speed- see Col. 3, lines 21-24) the structure travels ("predetermined clock pulses"- see Col. 4, lines 58-60). Scheinhütte and Nakagawa et al. do not teach using *all* the photodiodes to determine the average brightness value. It is well known in the art to use all sensors elements within a sensor array to determine an average value, to provide a complete mean value for the entire array. It would have been obvious to one of ordinary skill in the art at the time the invention was made to calculate an average brightness value using voltages from all the photodiodes and provide the threshold brightness value using the average brightness value multiplied by a factor number, as taught by Nakagawa et al. in the method of Scheinhütte, to provide an variable but accurate threshold to adjust for differing textile structures and colors.

Regarding Claims 41 and 42, Scheinhütte in view of Nakagawa et al. teach the method in Claim 50, according to the appropriate paragraph above. Scheinhütte does not teach the predetermined distance as 5mm or the period of time dependent on the speed of the doffer. It is well known in the art to select a reasonable portion of an entity to represent the entire entity, and that distance traveled with respect to a constant time period is dependent on traveling speed. It would have been obvious to one of ordinary skill in the art at the time the invention was made to use a predetermined distance of 5mm and provide the period of time as dependent on the speed

Art Unit: 2878

of the doffer in the method of Scheinhütte in view of Nakagawa et al., to provide an accurate representation of the average brightness of the textile according to a selected portion.

7. Claim 49 is rejected under 35 U.S.C. 103(a) as being unpatentable over Scheinhütte in view of Henze et al. US Patent No. 6,380,548.

Regarding Claim 49, Scheinhütte teaches the method in Claim 33, according to the appropriate paragraph above. Scheinhütte does not teach the detection of a brightness value solely by an outer photodiode in the arranged line of photodiode not considered as a point of disturbance. Henze et al. teach (see Fig. 1) a similar method, wherein the detection of a brightness value solely by an outer photodiode in the arranged line of photodiode not considered as a point of disturbance (see Col. 4, lines 1-7). It would have been obvious to one of ordinary skill in the art at the time the invention was made to provide the detection of a brightness value solely by an outer photodiode in the arranged line of photodiode not considered as a point of disturbance as taught by Henze et al. in the method of Scheinhütte, to prevent the size of the textile from affecting the detection process of disturbances.

8. Claim 50 is rejected under 35 U.S.C. 103(a) as being unpatentable over Scheinhütte in view of Takasuka et al. US Patent No. 4,075,498.

Regarding Claim 50, Scheinhütte teaches the method in Claim 33, according to the appropriate paragraph above. Scheinhütte does not teach the signals received by the measuring device from the photodiodes as amplified. Takasuka et al. teach (see Fig. 1) a similar device, wherein signals received by the measuring device (15) from the photodiodes (4) (see Col. 3, lines

Art Unit: 2878

43-47) are amplified (using (13)). It would have been obvious to one of ordinary skill in the art at the time the invention was made to amplify the signals received by the measuring device from the photodiodes as taught by Takasuka et al. in the method of Scheinhütte, to boost the detector signal for increased measuring sensitivity.

9. Claims 52 and 58 are rejected under 35 U.S.C. 103(a) as being unpatentable over Scheinhütte in view of Mor US Patent No. 5,752,294.

Regarding Claims 52 and 58, Scheinhütte teaches the method and device in Claims 33 and 58, according to the appropriate paragraph above. Scheinhütte does not teach the area of the planar structure being measured for brightness as optically magnified using a lens in each of the measuring heads. Mor teaches (see Fig. 2) a similar method, wherein an area of a planar structure (13) measured for brightness (using (18)) is optically magnified (17) (see Col. 5, lines 50-53) using a lens. It would have been obvious to one of ordinary skill in the art at the time the invention was made optically magnify the area of the planar structure being measured for brightness using a lens in each of the measuring heads as taught by Mor in the method and device of Scheinhütte, to provide increased detection sensitivity and utilize lower-cost, lower-resolution photodetectors.

10. Claims 54, 56, 57, and 59-61 are rejected under 35 U.S.C. 103(a) as being unpatentable over Scheinhütte.

Regarding Claims 54, 56, and 57, Scheinhütte teaches the method and device in Claims 53 and 55, according to the appropriate paragraph above. Scheinhütte also teaches a central

Art Unit: 2878

processor ("integrated circuit"- see Col. 4, lines 32-38) in communication with each measuring head (see Col. 4, lines 39-49). Scheinhütte does not teach the central processor allowing the measuring heads to communicate with one another for parameter settings, status inquiries and determination of a point disturbance using a parallel or serial bus. It is well known in the art to provide and forward two-way communication between a central processor and peripheral devices, to adjust settings and gather input, to correctly assess the status of the device. It would have been obvious to one of ordinary skill in the art at the time the invention was made for the central processor to allow the measuring heads to communicate with one another for parameter settings, status inquiries and determination of a point disturbance using a parallel or serial bus, in the method and device of Scheinhütte, to provide individual control for all the measuring heads for increased flexibility and adjustability.

Regarding Claims 59-61, Scheinhütte teaches the device in Claim 55, according to the appropriate paragraph above. Scheinhütte also teaches a light (12) illuminating said planar structure in a zone where said photodiodes inspect said planar structure (see Fig. 2). Regarding Claim 60, Scheinhütte teaches said light positioned so as to shine on said planar structure at a 45° angle. Regarding Claim 61, Scheinhütte teaches the light as a diode (see Col. 3, line 40). Scheinhütte does not teach a light for *each* of the measuring heads or the lights carried within the measuring heads, or the light as an *IR* diode. It is well known in the art to provide multiple light sources in a detection system, to provide sufficient illumination to increase detectability of a subject of interest, and to use infrared (IR) wavelength for a detection system to avoid interference with colored textiles. It would have been obvious to one of ordinary skill in the art at the time the invention was made to provide an IR diode light within *each* of the measuring

Art Unit: 2878

heads in the device of Scheinhütte, to provide sufficient illumination to increase detection contrast while reducing detection interference from a colored textile of interest.

11. Claim 64 is rejected under 35 U.S.C. 103(a) as being unpatentable over Scheinhütte in view of Berger US Patent No. 5,767,963.

Regarding Claim 64, Scheinhütte teaches the device in Claim 55, according to the appropriate paragraph above. Scheinhütte does not teach a daylight filter carried within each of said measuring heads between said photodiodes and said planar structure being measured, said filter filtering out stray light that enters said photodiode. Berger teaches a similar device, with a daylight filter to filter out stray light from a photodiode (see Col. 3, lines 12-14). It would have been obvious to one of ordinary skill in the art at the time the invention was made to provide a daylight filter in each of the measuring heads to filter out stray light from a photodiode, as taught by Berger, in the device of Scheinhütte, to reduce interference from daylight or ambient light for all the photodiode, as taught by Berger (see Col. 3, lines 12-14).

Conclusion

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Stephen Yam whose telephone number is (571)272-2449. The examiner can normally be reached on Monday-Friday 8:30am-5pm.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, David Porta can be reached on (571)272-2444. The fax phone number for the organization where this application or proceeding is assigned is 703-872-9306.

Art Unit: 2878

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

SY

SY


THANH X. LUU
PATENT EXAMINER